TOASTS AND RESPONSES AT THE SUPPER GIVEN BY THE TRUSTEES AT THE RESIDENTIAL HALL IN HONOR OF THE INAUGURAL LECTURERS

PRESIDENT LOVETT: *Ladies and Gentlemen*—This evening's program, arranged by the trustees in honor of the Inaugural Lecturers of the Rice Institute, began with a concert of the Kneisel Quartet in the Faculty Chamber, and has been continued by the supper of which we have just partaken in the first formal function of its kind to be held in the Commons of our first Residential College. The concluding part of the program presents a most inviting prospect of the Founder's high purposes, for we have asked Drs. van Dyke, Conklin, and Cram to respond for Literature, Science, and Art, respectively, while Professors Altamira, Jones, Borel, Volterra, Ramsay, and de Vries have consented to speak in turn on History, Philosophy, Mathematics, Physics, Chemistry, and Biology. And to preserve as far as possible a balance between science and the humanities, which we have sought to hold throughout all the academic events of these three days, the responses this evening will occur in the following order: Literature, Mathematics, Philosophy, Physics, Science, Chemistry, History, Biology, and Art.

On finding myself with Sir Henry on my left and Sir William on my right and their equally eminent seven colleagues both right and left, I feel to-night as the man did respecting the Shakspere-Bacon controversy. He said he didn't know whether Bacon wrote Shakspere's plays or not, but if he didn't he missed the greatest opportunity of his life.

We believe that the gentleman whom I am about to introduce to you has written most of his own verses and stories, but, nevertheless, his contemporaries have found in all of

them a cipher, and wherever this cipher turns up it says one and the same thing: The man who wrote these lines was a lover of nature and a lover of men. And consonant with this cipher one finds "love, beauty, joy, and worship," which, as Plotinus says on the great arch of the sally-port yonder, "are forever building, unbuilding, and rebuilding in each man's soul." Ladies and gentlemen, I have the honor of calling on Dr. Henry van Dyke, man of letters, faithful friend, poet laureate of the Rice Institute, who will respond for "Literature."

DR. HENRY VAN DYKE: Nothing ought to surprise those who have been the guests of Texas at the inauguration of the Rice Institute, and nothing ever after can be too good for them. We have been lifted by the springtide of your hospitality to the absolute high-water mark, and henceforth we must measure festivals by comparison with this.

One thing, however, has astonished me a little during these days, and that is to find so many "lions" in Texas: academic lions, scientific lions, lions of the world of higher education. Among these distinguished representatives of famous institutions, these doctors of many degrees, a simple shepherd of the hills can understand how Daniel must have felt in the lions' den—perfectly safe but somewhat embarrassed.

I do not represent any learned institution, any scientific theory, any school of philosophy. Merely because I have written a few stories and a few verses, I have been asked to speak for Literature.

Literature is that one of the arts which works with the least costly of all materials—words—to embody the most precious of all human possessions—ideas. Any language that has expressed noble thought and feeling in lucid form

becomes classic. Any race that has succeeded in producing real literature, by virtue of that production becomes immortal. The one thing that does not die is the well-chosen word whose soul is the well-born thought.

Literature is the most humane and intimate of all the arts. It comes closest to the common life of man. Good books help us to understand our own hearts. They open the world to us. They are revealers and interpreters, friends and counselors. They liberate us, at least for a little while, from the slavery of time and space. And while the other arts in their perfection are not always accessible to those who are not rich in this world's goods, the best literature is usually the cheapest.

There has been a good deal of talk about an "American literature." American literature has begun. It began when the life of the American people became conscious of deep thought and true feeling, and took expression in literary form. It will continue and grow and develop, this American literature, just as the life of the people of America becomes deep, strong, vital, and sane. It cannot be made to order. It cannot be made on a cook-book recipe. It cannot be made by any plan of localism, or by the division of the country into geographical sections, so that we shall have a literary school of the southern half of Indiana, or a literary school of the eastern corner of the northern half of Texas. That is not the way literature is made. Literature will grow when the life of America is so enriched with deeper emotion and thought that it must find expression in our common and classic English tongue.

Literature cannot be taught. There are things in our universities that we call "chairs of literature." Those who occupy them, if they are doing their duty, are simply "teachers of reading"—that is all. Literature cannot be taught,

any more than any other of the higher arts can be taught. You cannot make a literary man by instruction in a classroom. You can correct his grammar. You can correct his spelling; that is to say, you can do something in that direction as long as the "Simplified Spellers" remain in abeyance. But you cannot make him a writer, any more than you can make him a sculptor, unless Nature has bestowed the gift.

The best that we can do for Literature in our universities is this: to cultivate an appreciation for that which is finest and most humane in the writings of the past; to teach young men and women to know the difference between a book that is well written and a book that is badly written; to give them a standard by which they may judge and measure their own efforts at self-expression; and to inspire in the few who have an irresistible impulse to write, a sincere desire to find a clear, vivid, and memorable form for the utterance of the best that is in them.

This is something which I think the university may well propose to itself as one of its high objects: to promote the love of good literature, and to endeavor that no one shall obtain an academic degree who does not know *how to read* —to read between the lines, to read behind the words, to enter through the printed page into a deeper knowledge of life.

I hope that the Rice Institute, with its magnificent outlook toward science, will produce scientific men who shall be at the same time men of true culture, who shall illustrate that type of science whose representatives we have listened to here—men whose knowledge of the facts and laws of the physical world does not blind them to the beauty and power of those ideals, memories, imaginations, and hopes which are perpetuated in literature for the cheer and guidance of mankind.

PRESIDENT LOVETT: It was at the Sorbonne, I believe, that the first conspicuous public reference to the plans of the Rice Institute was made, and in one of the lectures which, as visiting professor, the last speaker delivered on the "Spirit of America." We have with us on this occasion a distinguished permanent member of the University of Paris. By way of making him feel more at home at the table of this Residential Hall, I venture to remind him that his own ancient university was originally composed of residential colleges, and that the Ecole Normale, whose scientific studies he directs, is itself a residential college. Furthermore, the subject which he represents has a great community of interest both to the scientific and to the lay mind, for mathematics is as fundamental as logic itself to scientific inquiry, and shares with music the distinction of being a survivor of the Tower of Babel. On this high and noble theme I now ask Professor Borel to speak.

PROFESSOR EMILE BOREL: President Lovett has very kindly asked me to speak to you this evening concerning the rôle of mathematics in the domain of culture. It is a subject which seems somewhat dry and rather difficult to treat in an after-dinner speech. Mathematics is rarely considered to be an appropriate subject for conversation by those who are not mathematicians. People generally think that the science of numbers has no very intimate connection with life, and that mathematicians might without great loss to civilization remain shut up in their towers of ivory. Nevertheless, it is impossible not to recall that twenty-five centuries ago, under a sky as beautiful as is yours, it was precisely through abstract speculations that the great geometers began the liberation of the human reason. From these speculations geometry, algebra, mechanics, astronomy, and physics have

sprung. Through the logical play of his reason man has given himself an account of the laws which regulate the world. He has come to comprehend that blind chance does not preside over the destinies of the universe, and that the concepts accessible to the mind of geometers can serve to penetrate the great laws of nature. Therefore he has come to use these laws for the profit of human civilization. Accordingly, the mathematical reason is the basis of man's conquest of the universe. Is it not by virtue of mathematics that navigation of the seas has become possible? If the thinkers had not meditated upon certain abstract laws, could any vessel have been able to plow through the waves of the Atlantic? It is to mathematics that Christopher Columbus owed, exactly four hundred and twenty years ago, his ability to reach in safety these unknown shores. And they are the heirs of Greek thought who, realizing the great scientific movement of the seventeenth and eighteenth centuries, have made possible the great industrial inventions of the nineteenth century, the organization and conquest of the globe by human civilization.

The mathematicians are the pioneers of science. Often indeed their work is several centuries in advance of practical applications, but, without their works, discoveries the most admirable would have failed of any practical application. It is not sufficient to observe the facts: it is necessary to know the laws which govern these facts. Every one knows that the stone he drops will fall to the ground; mathematics alone has given, with respect to this fact which appears so simple, explications and formulæ which have been permitted most admirable mechanical applications.

The Rice Institute preserves by the side of letters and art a place for the sciences—for the mathematical sciences among others. In addition to the practical utility of which

I have just spoken, the mathematical sciences have an intellectual utility in the development of the human spirit. They accustom the intellect to the use of a rigorous and clear-cut logic; they render the understanding tractable to finesse of intuition and induction. I trust that in so magnificent a new university as is the Rice Institute mathematics may make many adepts. For if mathematical culture should be removed from the world, scientific culture would become as a tree whose roots had been cut. And in conclusion I raise my glass to Mathematics and the prosperity of the Rice Institute.

PRESIDENT LOVETT: The gentleman who has just spoken would agree with Gauss that mathematics is "the queen of the sciences." The eminent philosopher who is about to speak would insist that philosophy is the science of the sciences, the glory and the guardian of all the sciences. We have paid our tribute to philosophy on the chief stone of our first building, where one may read the tribute Democritus paid to science for its own sake when he exclaimed: "Rather would I discover the cause of one fact than become king of the Persians." This fine expression of the spirit of science on the part of the ancient Greek philosopher is rather more generous than is the attitude of the average modern scientist toward philosophy.

The intensely human philosopher on my left has told me in conversation this evening that to get a speech out of him to-night it would be necessary to stir his temper. It is in the affection inspired in all of us by the earnest appeal of his discourse as the sun was setting last evening that I venture to apply the necessary lash. To him there may perhaps be some stimulus in that ancient characterization of a metaphysician—a characterization so old, in fact, that the mind

of man runneth not to the contrary—namely, that a metaphysician is a blind man in a dark room groping after a black cat—that is not there! Ladies and gentlemen, I have very great pleasure in asking Professor Sir Henry Jones to tell us what Philosophy is.

PROFESSOR SIR HENRY JONES: Surely the hour of parting has come, if it is to come at all, and my stay amongst you is not to be permanent. It is not only the smallness of the hours of the night that suggests it, but the words we have just heard from the president. For what he has said indicates all too clearly that matters are maturing fast toward that condition when parting will be impossible. He has made himself so lovable that his very incivilities are adorable. And incivilities they are! What more incivil thing could he suggest to a votary of Philosophy than that his goddess is antiquated—that he belongs of right to ages long past, and civilizations whose sun has set, and is out of place in a country where the sun is just rising and the fullness and joy of the day is all to come?

And yet I thank him for that word. I shall connect it always with a memory which will remain extraordinarily impressive to me—of the first plea ever made for Philosophy in your new Institute. We were considering some of the things that matter most, contemplating for a brief moment some of those truths which, because they belong to the moral structure of the world, cannot come to be nor pass away, and have neither beginning nor end, but remain stable forever. The level rays of the sun, far-flung over the lonely prairie which begins from the building wherein we sat, struck through the windows of the lecture-hall, and they were saturated with the beauty of some nameless color, and carried with them far into the heart of the audience a most strange

sense of silence and tranquillity. I felt anew the truth of the word of the wise man who said that "Philosophy does not appear until some form of civilization has grown old." Then, indeed, it gathers up its meaning and treasures it for the ages still to come. So that it is to Philosophy, whether it be in the form of art or that of contemplative reason, we owe now the spiritual inspiration of the life of Israel, the natural glory of the life of Greece, and the stately civic order of the life of Rome. We did well to meet in the evening at the altar of her goddess. The owl of Minerva, the bird of wisdom, does not set forth on its flight till the twilight begins to fall.

But what is Philosophy? some of you may ask. Science we know, and Art we know, and Literature we know: to these we have dedicated our Institute; but who or what is Philosophy? I am tempted to define it just as that for which there is no provision in the Rice Institute; but I would like to add to the definition, that provision *will* be made, and more amply when the Institute matures. "You wait," said a Chicago man to a Boston man who had taunted him with sticking pigs as the only form of culture in his city—"you wait till we have stuck a few more pigs, and Chicago will make culture hum!" There have been times in the world's history, or at least in that of the most beneficent of the nations, when Philosophy, the contemplative reconstruction of experience, the converse of the human spirit with itself, by which it makes its treasures its own, was their crowning achievement and the most splendid of all their enterprises. And that time will, I believe, come yet to you in this great country.

Another definition of Philosophy has occurred to me since coming into this room, on hearing the delightful speech of Professor Emile Borel of Paris. It is the study to which

great mathematicians are prone to turn when their minds mature. Plato, the broad-browed, in whose writing poetry and philosophy, beauty and truth, mingled their pure broad streams; Aristotle, possibly the greatest sheer intellect that the world ever saw, who fixed even until this day the provinces of so many of the sciences; Descartes, the greatest philosopher that France ever knew, and the prophet of the dawn of the modern world; Spinoza, probably the most seraphic of all great thinkers; Leibnitz, one of the most many-sided; and Immanuel Kant, with whose thinking modern civilization, like a broad river striking a granite bank, has taken its last great turn—all these were amongst the greatest, if not *the* greatest mathematicians of their day.

It was entirely natural that these great, grave, reflective spirits should be led, as life advanced, to consider those problems which, as they spring from the very nature of truth, reason cannot set aside and prosper. And it was not less natural that the severity of the method of the mathematical sciences should make them strong in the service of Philosophy, where, if possible, severity of method is at once more necessary and more difficult. For Philosophy sets man to strive to comprehend the working, not merely of natural agents as the sciences do, but of the experience in which the meaning of nature in its relation to man, and of man in his relation to nature, is arrested. It deals with the finer spirit, and the final issues, for it deals with facts as embodied in the world of interrelated minds and intersecting and yet co-operating wills which civilization is. Laxity of method, tendencies toward prejudices, antipathy save to error, love except for truth, are in this region fatal. For here we are dealing with ultimate values.

A great day is coming when man shall comprehend the working of his own spirit to the degree in which the sciences

reveal the meaning of nature; though these latter are themselves, no doubt, only at the beginning of things. For Philosophy is meant to crown the work of Science, even as Man, we believe, is the consummation of the natural scheme.

Then, too, the affinity of Philosophy with Art, and especially with the Art of Poetry, will become manifest. For, in my opinion, the poet and the philosopher are very much akin. They are, as a rule, both present and in power where the history of mankind shows that new times have come to the birth. If you were to ask me who in the English-speaking world were the greatest philosophers, I should be tempted to name the poets in prose and verse, especially Carlyle, Wordsworth, and Browning.

But the night is far spent, and the theme is too great except to touch its margin. I can wish nothing better for the Rice Institute than that it may for many centuries to come be the fostering home of Art, Science, and Philosophy. You have treated me and my fellow-guests with extraordinary kindness, and if you can entertain a philosopher so well now, I have no doubt that ere long you will "entertain that stranger"—Philosophy.

PRESIDENT LOVETT: In thanking Professor Sir Henry Jones for his eloquent apology for philosophy, I venture to say that our scheme of studies has been so arranged in the belief that if philosophy and science are to go hand in hand in our day, as they did in the earlier days of human thought, it becomes more and more necessary that the student of philosophy should have considerable acquaintance with chemistry, physics, biology, and the other experimental sciences before entering upon the serious study of philosophy itself. We have among our guests the distinguished mathematical physicist of the University of Rome, whose re-

searches have ranged from the physics of the earth through the physics of the ether to the motions of the heavenly bodies themselves. I have the honor of asking Professor Senator Vito Volterra to respond for this fundamental field of knowledge, wherein pure mathematics has met with some success the problems of the physical universe.

PROFESSOR SENATOR VITO VOLTERRA: Without doubt we shall never forget the days that we have spent at Houston. I do not hesitate to call the inauguration of such an institute as this an historic event: it is one that will have consequences of great importance for culture in general. Beginning in this impressive manner, endowed with means so large, directed by men so eminent, it is sure to have a considerable influence on the development of science.

It would not fit the case exactly to speak of pure science and of applications. By giving a solid base to culture, you are certain to prepare the new generations not only to contribute to scientific progress, but also to be ready to apply the resources of science to its most useful applications.

The physical sciences, pure physics in the most general sense of the word, give the most opportune illustration of what I have just said. It is sufficient to consider the developments that have taken place in the last few years, and the influence that these developments have had on the general concept of science that the public has found for itself. In the development of physics, the most completely theoretical part, which we call mathematical physics, and the experimental part, have always progressed side by side, each an aid to the other. Some branches, indeed, that at first sight seem far remote, we observe upon closer inspection to have had considerable influence on each other.

Consider, for instance, the case of astronomy, or, more

precisely, celestial mechanics. It seems entirely theoretical and abstract. Yet from where came the concept of potential? Laplace introduces it into the subject of celestial mechanics in order to study in a simple mathematical way the laws of universal gravitation. Now little by little the idea of potential was carried from the domain of celestial mechanics to that of static electricity. After that it was introduced into electrodynamics. And, different only in form, when electricity was brought to the hands of the whole world, it was acquired by the workers in electricity and the people. In a word, potential took its point of departure in integral calculus, but is now used by everybody.

Mr. Borel spoke to us, in his fine lecture, of certain functions, very complicated and difficult to study, that appear in analysis. They are to be applied to modern physics. Let us hope that they have a future comparable with that of the potential function.

The greatest progress in physics has taken place doubtless in the subjects of electricity, optics, and the theory of heat. At first widely distinct, they have become little by little closely connected; and if a scientist of a hundred years ago should behold their modern development he would be quite surprised to perceive that optics has become a special branch of electrodynamics, and that electricity is merely one chapter in a general theory that includes as special instances the theory of gases and the conduction of heat and electricity. And finally he would notice that the theory of energy dominates all branches of natural philosophy.

According to Descartes, mechanics was the basis of all physics. It has undergone many changes, and in the view of many scientists will cease to play that principal rôle and become a special branch of energetics. According to others, it will be modified in its most fundamental laws and become

an entirely new organum, completely without the bounds of classical mechanics.

Who can tell what the future prepares for us? New marvels are quite likely to follow those which have lately startled us. Probably many of the hypotheses that now serve us usefully must fall. They constitute merely the light scaffolding by means of which we erect a great building.

Beginning to-day, I see the Rice Institute, by means of its professors and students, drawn into the scientific progress of the future. I raise a glass and drink to the future of this institute, to its glory and service in the culture of America and the world.

PRESIDENT LOVETT: We have reached the keystone of our arch. In calling for the formal toast to "Science," I beg to remind you that the spirit of this university of science has been cut in two tablets of stone on the walls of its chief building. On one of them the Greek Aristotle says, "If we properly observe celestial phenomena, we may demonstrate the laws which regulate them," and on the other the Hebrew Job says, "Speak to the earth, and it shall teach thee." It is with peculiar pleasure that we have requested Professor Conklin of Princeton University to make this response; for, as one of the members of our first advisory committee, we greet him, not as a stranger, but as one on whose counsel we leaned even before any of our aspirations had begun to assume definite or concrete form. In his double capacity as professor of biology in Princeton University and expert adviser to the Rice Institute, I have the honor of introducing to you Dr. Edwin Grant Conklin, who will speak to the toast "Science."

PROFESSOR EDWIN GRANT CONKLIN: During this academic festival we have seen everywhere, on banners and

programs, on ice-cream and cakes, the seal of the Rice Institute with its three owls. In poetry and classic lore the owl is the bird of Minerva, the symbol of wisdom, but in fact and natural history he is the bird of night, and it was not until this dinner had lasted long beyond the night's keystone that the real inner significance of this seal dawned upon me—namely, the *three-owl power of the Rice Institute.*

But considering these owls on the seal as birds of wisdom, I ask you to observe their positions and names: two are on the roof or in the air, and one is in the coop or on the ground. The two in the air are labeled "Literature" and "Art," the one on the ground or in the coop is labeled "Science."

I am to speak for a kind of learning which is thought by some persons to have no wings, which "moves but slowly, slowly, creeping on from point to point"; which many consider as not only groveling, but as narrow in outlook and material in its tendencies. I wish to show that the chief debt of civilization to Science is not for material comforts, but for intellectual freedom and enlightenment; that while Science plants her feet on the solid ground of nature, she moves with her head among the stars.

The great aim of Science is to know and control nature, not merely for the purpose that man may obtain the golden touch, not that all things may be made to minister to his comfort, but rather that he may know the truth, and that the truth may set him free.

The wonderful material changes wrought by science, such as the developments of steam, electricity, and great engineering enterprises, and the consequent increase of comforts and enlargement of human experience; the remarkable growth of the applied sciences of chemistry, physics, biology,

and geology; and, perhaps most of all, the revolutionary changes in medicine, surgery, and public health which have followed a scientific study of the causes and remedies of various diseases, are liable to blind us to other great achievements of science, which, if less material, are none the less real and valuable.

1. First among all the services of science must always be reckoned its liberation of man from the bondage of superstition. We can never fully realize the terrors of a world supposed to be inhabited by demons and evil spirits, a world in which all natural phenomena are but the expressions of the love or hatred of preternatural beings. But we may gather from history and from present-day ignorance and superstition some faint idea at least of the ever present dread, even amidst happiness and joy, of those who feared Nature because they knew her not, of those to whom the heavens were full of omens and the earth of portents, of those who peopled every shadow with ghosts and evil spirits, and who saw in all sickness, pain, adversity, and calamity the cruel hand of a demon or the evil eye of a witch.

It is frequently assumed that the decline of superstition is due to the teachings of religion or to the general development of the intellectual powers of man, and there is no doubt that to a certain extent this is true. The general advance of the intellect, in so far as it is associated with truer views of Nature, is unquestionably inimical to superstition; yet the persistence of such a superstition as that concerning witchcraft through periods of great religious and intellectual awakening, the almost universal belief in it throughout the golden age of English literature, the statutes of all European countries against the practice of witchcraft, sorcery, and magic, some of which remained until the beginning of

the nineteenth century—all these things show that however religion and general intelligence may have curbed its cruel and murderous practices, its downfall could be brought about only by a more thorough knowledge of Nature. The common belief that insanity, epilepsy, and imbecility were the results of demoniacal possession necessarily led, even in enlightened and Christian communities, to cruel methods of exorcising the demon, and the final disappearance of this superstition (if it may be said to have disappeared even at the present day) is entirely due to a scientific study of the diseases in question.

The same might be said of any one of a hundred forms of superstition which, like a legion of demons, hedged about the lives of our ancestors. As false interpretations of natural phenomena, only truer interpretation could displace them; and what centuries of the best literature, philosophy, and religion had failed to do, science has accomplished. Science is, as the elder Huxley has said, organized and trained common sense; and nowhere is this better shown than in its rational, common-sense way of interpreting mysterious phenomena. No doubt much still remains to be accomplished; the unscientific world is still full of superstition as to natural phenomena, but it is superstition of a less malignant type than prevailed before the general introduction of the scientific method.

Furthermore, the cultivation of the natural sciences has done more than all other agencies to liberate man from slavish regard for authority. When all others were appealing to antiquity, the Church, the Scriptures, Science appealed to facts. She has braved the anathemas of popes and church councils, of philosophers and scholars, in her search for truth: she has freed from ecclesiastical, patristic, even academic bondage; she has unfettered the mind, enthroned

reason, taught the duty and responsibility of independent thought, and her message to mankind has ever been the message of intellectual enlightenment and liberty: "Ye shall know the truth, and the truth shall make you free."

2. But Science has not only broken the chains of superstition and proclaimed intellectual emancipation: she has enormously enlarged the field of thought. She has given men nobler and grander conceptions of nature than were ever dreamed of before. Contrast the old geocentric theory, which made the earth the center of all created things, with the revelations of modern astronomy as to the enormous sizes, distances, and velocities of the heavenly bodies; contrast the old view that the earth was made about six thousand years ago—5670 years last September, to be exact —in six literal days, with the revelations of geology that the earth is immeasurably old, and that not days but millions of years have been consumed in its making; contrast the doctrine of creation which taught that the world, and all that therein is, recently and miraculously were launched into existence, with the revelations of science that animals and plants and the world itself are the result of an immensely long process of evolution. As Darwin so beautifully says, "There is grandeur in this view of life with its several powers having been breathed by the Creator into a few forms or into one, and that whilst this planet has gone cycling on according to the first law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved." There is grandeur in the revelations of science concerning the whole of nature,—grandeur not only in the conceptions of immensity which it discloses, but also of the stability of nature. To the man of science nature does not represent the mere caprice of God or devil, to be lightly altered for a child's whim. Nature is, as Bishop Butler says,

that which is stated, fixed, settled, eternal process moving on, the same yesterday, to-day, and forever. Men may come and men may go, doctrines may rise and disappear, states may flourish and decay, but in nature, as in God himself, there is neither variableness nor shadow of turning. The all too prevalent notion that nature may be wheedled, cheated, juggled with, shows that men have not yet begun to realize the stability of nature, and indicates the necessity of at least some elementary scientific training for all men. "To the solid ground of Nature trusts the mind that builds for aye."

3. Science has changed our whole point of view as to nature and man, and science cannot therefore be eliminated from any system of education which strives to impart culture. It is not principally nor primarily in its results, however great they may be, that the chief service of science is found, but rather in its method. In a word, the method of science is the appeal to phenomena, the appeal to nature. To the scientist the test of truth is not logic, nor inner conviction, nor conceivability and inconceivability, but phenomena, or what are commonly called facts. The steps of this appeal to phenomena are first observation or experiment; then induction, hypothesis, or generalization; and finally verification by further observations, experiments, and comparisons. The methods of science have now invaded to a greater or less extent all domains of thought,—philosophy, literature, art, education, and religion,—and the unique character of the method of science may not be fully appreciated except upon comparison with pre-scientific or non-scientific methods.

Of course one need not expect to find any proper appreciation of the scientific method among the ignorant, but it is amazing how such appreciation is lacking among many

otherwise intelligent and cultivated people. We daily see innumerable cases where the test of truth is the appeal to superstition, to sentiment, to prejudice, to inner conviction—in short, to anything rather than facts.

Consider for a moment the art of healing, as contrasted with the science of medicine; the various "schools of medicine," and much more those who never went to school, appeal not to carefully determined, accurately controllable phenomena, but largely to sentiment, prejudice, and superstition. The same is true of the "fake" science which flourishes mightily in the daily papers, and especially is it shown in the hypotheses, discoveries, and dogmas of those who determine the laws of nature from introspection and construct the universe from their inner consciousness.

Every little while there arises a new and brilliant Lucifer who draws after him a third part of the hosts of heaven. Though he appears under many guises, such as divine healer, Christian Scientist (Heaven save the mark!), spiritualist, theosophist, telepathist, the main tenet of his belief is always the same—a revolt against the scientific method of appealing to phenomena.

What is the remedy for such a state of affairs? A little first-hand knowledge of scientific methods. The appeal to facts is the very foundation of science, and it is a method in which every person, and particularly every student, should receive thorough and systematic training.

To me it seems that there is no part of an education so important as this, none the lack of which will so seriously mar the whole life. Of course it is not claimed that all scientists best illustrate the scientific method, nor that it may not be practised by those who have not studied science, but that this method is best inculcated in the study of the natural sciences. Science not only appeals to facts, but it cultivates

a love of truth, not merely of the sentimental sort, but such as leads men to long-continued and laborious research; it trains the critical judgment as to evidence; it gives man truer views of himself and of the world in which he lives, and it therefore furnishes, as I believe, the best possible foundation, not only for scholarship in any field, but for citizenship and general culture.

But culture is not some definite goal to be reached by a single kind of discipline. There is no single path to culture, and the great danger which confronts the student of the natural sciences is that his absorption in his work may lead to a narrowness which blinds him to the broad significance of the facts with which he deals and unfits him for association with his fellow-men. A technical education which deals only with training for special work, without reference to foundation principles, may be useful and necessary, but it cannot be said to contribute largely to culture. What teacher has not been surprised and pained by the fear which some students exhibit that they may waste an hour on some subject the direct financial value of which they do not see,—students who fail to grasp general principles, to take a broad and generous view of life, to appreciate good work wherever done? The scientist no less than the classicist or the humanist should know the world's best thought and life. Life is not only knowing but feeling and doing also, and other things than science are necessary to culture. The day is forever past when any one mind can master all sciences, much less all knowledge; there can never be another Aristotle or Humboldt; nevertheless, in the demand for broad and liberal training the greatest needs of scientific work and the highest ideals of culture are at one, and this Institute can serve no more useful purpose than to stand for the highest, broadest, and most generous views of science, of education, and of life.

PRESIDENT LOVETT: If the manifold ramifications of the modern spirit of research and scientific inquiry have resulted in a corresponding multiplication of the sciences, that same method is constantly striving through their mutual relations to restore to science its unity. Physics and biology, the fundamental sciences of the inorganic and the organic world, respectively, find a meeting-ground in chemistry. Chemistry stands out in the history of science with as romantic a background as is that possessed by astronomy. The one began in astrology and the desire of man to read his fate in the stars; the other began in an alchemy which reflected a corresponding desire to find the fortune of gold in all the baser elements of earth. Professor Sir William Ramsay, in his inaugural lecture this morning, showed us how he has been bringing all that romance within reach of realization. He has consented to respond still further for Chemistry this evening.

PROFESSOR SIR WILLIAM RAMSAY: I did not know anything was expected of me to-night, and I will not disappoint you if at this very late hour of the night I suggest that speech should be extremely brief.

The subject of chemistry is a very large one, and if I were to try to explain it to you, I think I should have to treat you to an account of what has been accomplished by all chemical students. If you are prepared to listen, I shall be delighted to go on; and, if you like, I can begin with the beginning of chemistry and lead you straight through the old and modern history of chemistry.

Chemistry plays a considerable part in the welfare of mankind, and, as the last speaker has said, the scientific man regards it from the point of view of curiosity to know how the little wheels go round. I have always had such curiosity;

but I think I may speak for every true man of science who takes the trouble to investigate nature, if I say that women ought to be the best chemists; for Eve was the first and most curious of God's creatures.

It is said to be owing to her action that the state of affairs which we see around us now was produced; and possibly, in the days of the future—the time when men have been excluded from the vote, and when the country is ruled by women—the courage which is inherent in success will again appear. I remember a saying which struck me at the time as very true, and by no means discourteous to women; it is, that women take more interest in persons, while men are more interested in things.

I am sure that you will find that there are few women who devote themselves to any source or branch of knowledge, except for the love of some man whom they elect to follow. As for us men, we shall continue the researches with as much vigor as we have up to now bestowed upon them. We are continually approaching a goal which can never be reached; and it is as well that it is unattainable, for it would be selfish in us to wish to find out everything and leave nothing for our successors. That is impossible; the world of knowledge is illimitable, and no words are available to express its infinite extent. Newton, the great natural philosopher, said once that we are all like children on the sea-shore, picking up here and there a pebble, while the vast ocean of knowledge is spread at our feet. We are lucky if we find pebbles; those of us who try pick up small and not very valuable stones for the most part.

The work of the man of science is in some degree creative; and I say that this spirit of creation is not confined to the scientific man, but is common to the artist, to the man of letters, and even to the philosopher. It is the spirit which

impels us forward on the road which we must travel, and the great pleasure of those of us who feel in that way must be to induce others to travel along the same road. There is no greater pleasure than to see one's disciples succeed, no greater pleasure than to feel that they are pushing along the road which leads to victory, and doing something for the ultimate happiness and benefit of the human race.

PRESIDENT LOVETT: When the history of the nineteenth century comes to be written, it is doubtful whether that century will stand out more prominently as a century of science or a century of history. From some points of view, the history of historians in the nineteenth century is almost as fertile in ideas as is the history of scientists in that same period. If history has been assuming more and more the characteristics of a science, it should nevertheless be losing none of its character as an art. If history has become a subject of scientific research, not in laboratories but in archives and excavations, it still must be more than chronology, more than critical survey and systematization of sources; for to be great, as the father of history made it great, it still must be great as literature. Those of you who listened to the eloquent lecture of Professor Altamira this morning will welcome him again heartily to-night as an able exponent of this double aspect of history.

PROFESSOR RAFAEL ALTAMIRA: I should like nothing better than to undertake an apology for historical studies in the same fashion as I have seen my colleagues to-night present apologies for other scientific fields, but I find that the night is too far spent to engage myself in the arguments and explications which in the face of the vulgar skepticism concerning the subject of history refuse to be summarized either readily

or succinctly. I prefer, therefore, to limit the representation of my studies on this occasion to recalling an historic event which most naturally jumps to mind at this time. Ladies and gentlemen, it is just past midnight. The eleventh of October gone, we have arrived at the unforgetable date of the twelfth of October; that is to say, we have come to the day on which, four hundred and twenty years ago, Christopher Columbus with his Spanish boats and sailors arrived at the first of the American countries to become adequately known to Europeans. This event, which had quite another object than that of discovering a new world, was nevertheless the cause of a great change, by which the old continent of Europe, distressed by profound crises of conscience, yet illuminated by the light of the Renaissance of learning and scientific discovery, renewed history by passing from the régime of simple commerce with people anthropologically different from themselves to that of the emigration and the founding of new nationalities from the same stock.

Permit me to recall that to Spain belongs the glory of having promoted this new era in human life, and of having sent forth the first elements of population and European civilization to America. Any consideration of the processes which have been necessary to change the America of the fifteenth and sixteenth centuries into the America of the twentieth century, so full of lessons for human psychology and human education, is of itself sufficient to justify the importance of historical studies. Nowhere in the whole sphere of human knowledge could a man find a subject more worthy of study and reflection. But this is not the moment to enter upon such a study. I can do no more than recall to your thought Christopher Columbus and his companions, and ask you to think of them with thoughts full of appreciation and admiration. This Spain of which they were a part, and

which is forever linked by them to America, says to you through my voice at this solemn hour for Houston:

"Viva el Instituto Rice!" ("A long life to the Rice Institute!")

A more sincere toast, or one fuller of meaning, I know not how to utter.

PRESIDENT LOVETT: Comparable with the wealth that followed in the wake of the memorable expedition of the illustrious Christopher Columbus in the *Santa Maria,* the *Niña,* and the *Pinta,* to which Professor Altamira has so pertinently alluded, is the wealth to human thought that Charles Darwin brought back from a similar voyage of discovery made in the *Beagle* some three hundred years later. I should hesitate to place letters, philosophy, history, and art in anything approximating a logical sequence; but in arranging the order of responses I had no hesitation in placing mathematics, physics, chemistry, and biology in the order in which their representatives appear here to-night, for mathematics is indispensable to the physicist, mathematics and physics to the chemist, and mathematics, physics, and chemistry to the biologist. Thus we have in biology a crown of the sciences. To make this crowning response for science I have great pleasure in calling upon Professor Hugo de Vries of the University of Amsterdam, whom others, much more competent to speak than I, have characterized as the lineal successor of the illustrious Charles Darwin.

PROFESSOR HUGO DE VRIES: It is with great satisfaction that we have seen the foundation of this new Institute. No country has such a large number of universities on so small a tract of land as has my native country—Holland. Nowhere are the relations between science and practice so intimate as with us, and nowhere is the influence of research work

and teaching on the education of the people and on the increase of wealth and prosperity more evident than with us. Therefore I cordially sympathize with your work, and think that the best thing William Marsh Rice could have done for his beloved Texas was the foundation of a center of education and learning, which should gradually become a constantly increasing source of evolution on the highest lines. The Southern States want to show to all civilized nations that they are evolving on the same broad lines, and have the means and the will of rivaling them in all those things on which the progress of civilization depends. William Marsh Rice has incorporated this idea in the form of an institution of learning, and the trustees of his foundation have developed it to the high standing of a young university.

I esteem it a favor to express my sincere thanks to the trustees and the president for the kind hospitality I have enjoyed as their guest. I am very glad to be present here and to have the distinguished honor of participating in the dedication of the Rice Institute.

In the play of "Hamlet," Shakspere says: "There are more things in heaven and earth than are dreamt of in our philosophy." It is the task of science mainly to find out all these things in heaven and on earth which are still unknown to us, and there are so many of them that we want collaborators all over the earth. We want from you collaboration; and from the things I have seen to-day in the beginning of this young Institute, I may predict a proud future in scientific research as well as in educational work.

Such a proud future I may predict, and heartily wish it to the president and Board of Trustees of this great Institute, which has been made possible by the money of William Marsh Rice and the brain of Edgar Odell Lovett.

I drink to the prosperity of the Rice Institute.

PROFESSOR SIR WILLIAM RAMSAY: I don't know whether the ceremony is ended or not, but there is one thing we ought all do to-night, and that is drink to the health of your president, Edgar Odell Lovett.

At this late hour it is obviously not expedient to make a long oration in which his many virtues should be chronicled; but you will all agree with me that it is our duty, as well as our great pleasure, to thank him, before we part, for all his kindness to us; to congratulate him on the magnificent success of these celebrations, for which he has so arduously prepared; and to wish him and Mrs. Lovett many long and happy years in which to enjoy their life at this Institute, the inauguration of which has been so happily completed.

PRESIDENT LOVETT: I should indeed be short in human feeling were I not deeply touched by your generous response to Professor Sir William Ramsay's gracious suggestion. But, ladies and gentlemen, it is the man I am now about to introduce to you that you should have toasted and cheered, for it is to the genius of his constructive imagination that we owe all the beauty of this place. The appeal of these beautiful buildings is his appeal—an appeal that places beauty of art alongside of beauty of truth and beauty of holiness. In the walls of the first of these monuments which he conjured from the civilizations of southern climes we have caused to be carved: "The chief function of art is to make gentle the life of the world," and "The thing that one says well goes forth with a voice unto everlasting." The things that Mr. Cram has wrought so well we have builded in brick and bronze and marble, in the hope that they may endure unto days everlasting. I have the honor of introducing to you the architect of the Rice Institute, who will respond for "Art."

DR. RALPH ADAMS CRAM: After what fashion shall I, follower of art in a sense, speak on this debatable subject, here at the inauguration of a great institution of culture and learning, and before you, its earliest and forever most honored guests, who, personally and officially representing Church, State and School, here and now pay tribute to that great power whose duty it is to lead onward and forward every child born of man, until, man at last, he is worthy to play his part in the life that opens before him of service and charity and righteousness and worship?

I might speak of art historically, as the perfect flowering of sequent epochs of civilization, as the evanescent record of man's power of great achievement, as a glory of history in Homer and Phidias, in Virgil and Arthemius of Tralles, in Ambrosian chant and Gregorian plain-song, in the Arthurian legends and the Nibelungenlied, in Adam of St. Victor and Dante, in Cimabue and Giotto and their great successors; in the cathedrals and abbeys of medievalism, in the sculptures of Pisa and Paris and Amiens, in Catholic ceremonial, in the glass of Chartres, the tapestries of Flanders, the metal-work of Spain; in the drama of Marlowe and Shakspere, in the music of modern Germany, in the verse of the English Victorians. I might speak of art as an ornament and amenity of life, a splendid vesture covering the nakedness of society. I might speak of it in its economic aspect, or as the handmaid and exponent of religion.

Art is so great a thing, so inalienably a heritage and a natural right of man, it has all these aspects, and more, but for the moment I narrow myself to yet another consideration—the function of art as an essential in education.

The adjective may strike you strangely—an essential element—not an accessory, an extension; but I use it with intention, though to justify such use I must hasten to disavow

any reference to the teaching of art as this now obtains either in art-schools or under university faculties of fine arts. It is, I admit, hard to conceive such teaching as being of necessity an integral part of any scheme of general education, however efficient it may be when viewed in the light of its own self-determined ends, and I should expect from no source endorsement of any argument for the universal necessity of an art education conceived on similar lines; but I plead for a higher, or at least broader, type of such teaching, because I try to place myself amongst those who set a higher estimate on art, conceiving it to be not an applied science or a branch of industrial training, nor yet an extreme refinement of culture study, but simply an indispensable means toward the achievement of that which is the end and object of education—namely, the building of character.

There were days, and I think they were very bad old days, when it was held that education should take no cognizance whatever of character, of the making of sane, sound, honorable men and women, but only of mental training and mental discipline. Then it was said with grave assurance that it was not the province of public education to deal with religion, ethics, or morals, except from a strictly historical and conscientiously non-sectarian standpoint, and that the place for the teaching of these things was the Home—spelled with very large capitals. After a while the compulsion of events forced a readjustment of judgments and we became conscious of the fact that a combination of influences—amongst them our very schools themselves—had resulted in the production of homes where neither religion nor ethics was taught at all, and where conscious character-building was of the most superficial nature, while the concrete results were somewhat perilous to society. Struck at last by the fact that our most dangerous criminal classes

were made up of those who were extremely well educated, we were compelled, as Walt Whitman says, "to re-examine philosophies and religions," and some of us came to the conclusion that if the schools were to save the day, as they certainly must and certainly could, a new vision was necessary, and that what they were set to do was the bending of all their energies and powers toward character-building, toward the making, not only of specialists, but of fine men and women and good citizens.

Under the old system the significance of art and the part it could play in education were generally ignored; it was treated either as an "extra," as a special study like Egyptology or Anglo-Saxon, and so regarded as the somewhat effeminate affectation of the dilettante, or as a "vocational course," ranking so with mining engineering, dentistry, and business science. So taught, it was indeed no essential element in general education; but if we are right in our new view of the province thereof, it may be that our old estimate of art and its function and its significance needs as drastic a revision, and that out of this may come a new method for the teaching of art.

What is it, then,—this strange thing that has accompanied man's development through all history, always by his side, as faithful a servant and companion as the horse or the dog, as inseparable from him as religion itself; this baffling potentiality that has left us authentic historical records where written history is silent, and where tradition darkens its guiding light? Is it simply a collection of crafts like hunting and husbandry, commerce and war? Is it a pastime, the industry of the idle, the amusement of the rich? None of these, I venture to assert, but rather the visible record of all that is noblest in man, the enduring proof of the divine nature that is the breath of his nostrils.

Henri Bergson says, in speaking of what he calls—inadequately, I think—intuition: "It glimmers wherever a vital instinct is at stake. On our personality, on our liberty, on the place we occupy in the whole of nature, on our origin, and perhaps also on our destiny, it throws a light, feeble and vacillating, but which nevertheless pierces the darkness of the night in which the intellect leaves us." Here lies the province of art, where it has ever lain; for in all its manifestations, whether as architecture, painting, sculpture, drama, poetry, or ritual, it is the only visible and concrete expression of this mystical power in man which is greater than physical force, greater than physical mind, whether with M. Bergson we call it intuition, or with the old Christian philosophers we call it the immortal soul.

And as the greatest of modern philosophers has curbed the intellectualism of the nineteenth century, setting metes and bounds to the province of the mind, so he indicates again the great spiritual domain into which man penetrates by his divine nature, that domain revealed to Plato and Plotinus, to Hugh of St. Victor and St. Bernard and St. Thomas Aquinas. As Browning wrote, "A man's reach must exceed his grasp, or what is a heaven for?"—so, as man himself, transcending the limitations of his intellect, reaches out from the world of phenomena to that of the noumenon, as he forsakes the accidents to lay hold on the substance, he finds to his wonder and amazement the possibility of achievement, or at least of approximation, and simultaneously the overwhelming necessity for self-expression. He has entered into a consciousness that is above consciousness. Words and mental concepts fail, fall short, misrepresent; for again, as M. Bergson says, "The intellect is characterized by a natural inability to comprehend life," and it is life itself he now sees face to face, not the inertia of material things; and it is

here that art in all its varied forms enters in as a more mobile and adequate form of self-expression, since it is, in its highest estate, the symbolic expression of otherwise inexpressible ideas.

Through art, then, we come to the revelation of the highest that man has achieved; not in conduct, not in mentality, not in his contest with the forces of nature, but in the things that rank even higher than these—in spiritual emancipation and an apprehension of the absolute, the unconditioned. The most perfect plexus of perfected arts the world has ever known was such a cathedral as Chartres, before its choir was defiled by the noxious horrors of the eighteenth century; when its gray walls were hung with storied tapestries, its dim vaults echoed to solemn Gregorians instead of operatic futilities, and the splendid and dramatic ceremonial of medieval Catholicism made visible the poignant religion of a Christian people. And in this amazing revelation of consummate art, music was more than "a concord of sweet sounds," painting and sculpture more than the counterfeit presentment of defective nature, architecture more than ingenious masonry; through these and all the other assembled arts radiated, like the colored fires through the jeweled windows above, awe, wonder, and worship of men who had seen some faint adumbration of the Beatific Vision and who called aloud to their fellows, in the universal language of art, the glad tidings of great joy, that by art man might achieve, and through art he might reveal.

Now if art is indeed all this—and the proof lies clear in itself—then its place in liberal education becomes manifest and its claims incontestable. If education is the eduction of all that is best in man, the making possible the realization of all his potentialities, the building up of personality through the dynamic force of the assembled achievements

of the human race throughout history, and all toward the end of perfecting sane and righteous and honorable character, then must you make art, so understood and so taught, as integral a part of your curriculum as physics or mathematics or biology. Not in dynastic mutations, not in the red records of war, not in economic vacillations or in mechanical achievements, lies the revelation of man in his highest and noblest estate, but in those spiritual adventures, those strivings after the unattainable, those emancipations of the human soul from the hindrance of the material form, which mark the highest points of his rise, presage his final victory, and are recorded and revealed in the art which is their voicing.

The Venus of Melos, "Antigone," Aya Sophia, Gregorian music, Latin hymnology, the "Divina Commedia," Giotto's Arena Chapel, Chartres, Westminster Abbey, "Hamlet," Goethe's "Faust," "Parsifal," "Abt Vogler," are all great art, and as great art beyond price, but greater, more significant by far as living indications of what man may be when he plays his full part in God's cosmogony.

Where is art taught in this sense and to this end? I confess I do not know. Instead we find in many places laboratories of art-industry, where, after one fashion or another, ambitious youth—and not always well advised—is shown how to spread paint on canvas; how to pat mud into some quaint resemblance to human and zoölogical forms; how to produce the voice in singing; how to manipulate the fingers in uneven contest with ingenious musical instruments; how to assemble lines and washes on Whatman paper so that an alien mason may translate them, with as little violence as possible, into terms of brick and stone, or plaster and papier-mâché. And we find names, dates, sequences of artists taught from text-books, and sources and influences taught

from fertile imaginations, together with erudite schemes and plots of authorship and attribution, but where shall we find the philosophy, the rationale of art inculcated as an elemental portion of the history of man and of his civilization?

Categories, always categories; and we delimit them to our own undoing. There have been historians who have compiled histories with no knowledge of art and with scant reference to its existence; there have been artists who have taught art with no knowledge of history and with some degree of contempt for its pretensions: yet the two are one, and neither, from an educational standpoint, is wholly intelligible without the other. It is through Homer and Æschylus that we understand Hellas; through Aya Sophia that we understand Byzantium; through Gothic art that we know medievalism; through St. Peter's and Guido Reni that the final goal of the Renaissance is revealed to us. And so, on the other hand, what, for example, is the art of the Middle Ages if we know nothing of the burgeoning life that burst into this splendid flowering? What are the cathedral-builders to us, and the myriad artists allied with them, when severed from monasticism, the Catholic revival, the Crusades, feudalism, the guilds and communes, the sacramental philosophy of Hugh of St. Victor, and the scholastic philosophy of St. Thomas Aquinas? We build our little categorical box-stalls and herd history in one, art in another, religion in a third, philosophy in a fourth, and so on, until we have built a labyrinth of little cells, hermetically sealed and securely insulated; and then we wonder that our own civilization is of the same sort, and that over us hangs the threat of an ultimate bursting forth of imprisoned and antagonistic forces, with chaos and anarchy as the predicted end.

Again we approach one of those great moments of readjustment when much that has been perishes and much that

was not comes into being; one of those nodes that, at five-hundred-year intervals, mark the vast vibration of history. For five centuries the tendencies set in motion by the Renaissance have had full sway; and as the great epoch of medievalism ended at last in a decadence that was inevitable, so is it with our era, called "of enlightenment," the essence of which is analysis as the essence of that was synthesis. As medievalism was centripetal, so is modernism centrifugal, and disintegration follows on faster and ever faster. Even now, however, the falling wave meets in its plunge and foam the rising wave that bears on its smooth, resistless surge the promise and potency of a new epoch, nobler than the last, and again synthetic, creative, centripetal.

No longer is it possible for us to sever being into its component parts and look for life in each moiety; for us, and for our successors, is the building up of a new synthesis, the new vision of life as a whole, where no more are we interested in isolating religion, politics, education, industry, art, like so many curious fever-germs, but where once more we realize that the potency of each lies, not in its own distinctive characteristics, but in the interplay of all.

And with this vision we return to the consciousness that all great art is a light to lighten the darkness of mere activity, that at the same time it achieves and reveals. So, as art shows forth man's transfiguration, does it also serve as a gloss on his actions, revealing that which was hid, illuminating that which was obscure.

So estimated and so inculcated, art becomes, not an accessory, but an essential, and as such it must be made an integral portion of every scheme of higher education. A college can well do without a school of architecture, or music, or painting, or drama, and the world will perhaps be none the poorer; but it cannot do without the best of every art in

its material form, and in the cultural influences it brings to bear upon those committed to its charge, nor can it play its full part in their training and the development of their character unless, out of the history of art, it builds a philosophy of art that is not for the embellishment of the specialist, but for *all*.

"Man is the measure of all things," said Protagoras; and with equal truth we can say, Art is the measure of man.

PRESIDENT LOVETT: It is with sincere regret that I bring this meeting to a close. We have listened to philosopher, poet, historian, and architect, to biologist, chemist, physicist, and mathematician, and while we may neither point to the rooms in which Newton lived, as the Cambridge don may do at Trinity College, nor to the laboratories where Pasteur wrought, as may the doctors of Paris, yet from this night forth we shall forever be able to say that at this high table of the first Residential College of the Rice Institute, Altamira, Borel, Conklin, Cram, de Vries, Jones, Ramsay, van Dyke, and Volterra broke bread with us, and spoke to us of the things of beauty and truth that freemen hold dearer than life itself. For them and for you, sound slumber and sweet dreams for the night; and for the morrow, in the words of Kipling, "What all men desire—enough work to do and strength enough to do that work." And as a final favor I am going to ask Professors Sir Henry Jones and Sir William Ramsay to lead us in singing, "Should auld acquaintance be forgot."